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**Atty. Docket**

**270/234; 18721-7053  
(PCM:ct)**

**Applicant(s):**

**Yoshihiro Takai, et al.**

**Title:**

**METHOD AND APPARATUS FOR IRRADIATING A TARGET**

**Serial No.:**

**10/037,477**

**Filing Date:**

**January 2, 2002**

**Commissioner for Patents  
Washington, DC 20231**

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1. Supplemental Information Disclosure Statement with Certificate of Mailing (3 pages)
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☒ This IDS is believed to be timely in that it is being submitted under 37 CFR § 1.97(b), that is (1) within three months of the filing date of the application, which is not a continued prosecution application filed under § 1.53(d) or (2) within three months of entry of the national stage as set forth in 37 CFR § 1.491; or (3) before the mailing of a first Office action on the merits; or (4) before the mailing of a first Office action after filing a request for continued examination under § 1.114. Thus, no fee is required.

☒ However, if the undersigned is in error in this regard, Applicant respectfully requests that the Office consider this IDS as filed under 37 CFR § 1.97(c), if applicable, and charge the fee due under 37 CFR § 1.17(p) to the deposit account referenced below.

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☐ This IDS is being submitted under 37 CFR § 1.97(c), that is after mailing of a first Office action on the merits, but before a Final Action under 37 CFR § 1.113 or a Notice of Allowance under 37 CFR § 1.311.

☐ The fee due under 37 CFR § 1.17(p) is submitted herewith.

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☐ This IDS is being submitted under 37 CFR § 1.97(i); this IDS does not comply with either 37 CFR § 1.97 or § 1.98. Therefore it is requested to be placed in the file but not considered by the Patent Office. A statement under 37 CFR § 1.97(e) is included below.

STATEMENT UNDER 37 CFR § 1.97(e):


- ☐ Each item contained in this IDS was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS.
- ☐ No item contained in this IDS was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing this statement after making reasonable inquiry, no item of information contained in this IDS was known to any individual designated in 37 CFR § 1.56(c) more than three months prior to the filing of this IDS.

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- ☒ The Commissioner is authorized to credit any overpayment and to charge any underpayment to Bingham McCutchen's Deposit Account No. 50-2518, referencing billing No. 18721-7053, for any fees required by the filing of these papers..

Respectfully submitted,  
BINGHAM McCUTCHEN LLP

Dated: 3/17/03

By:   
Gerald Chan  
Reg. No. 51,541

BINGHAM McCUTCHEN LLP  
Three Embarcadero, Suite 1800  
San Francisco, CA 94111-4067  
(650) 849-4400

**\*23639\***

**23639**

PATENT TRADEMARK OFFICE

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Complete if Known

Application Number	10/037,477
Filing Date	January 2, 2002
First Named Inventor	Yoshihiro Takai, et al.
Art Unit	2882
Examiner Name	Not yet assigned
Attorney Docket No.	270/234; 18721-7053

# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 1

## U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number - Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YY	Name of Patentee or Application of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

## FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> - Number <sup>4</sup> - Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YY	Name of Patentee or Application of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>

## OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher city and/or country where published
	1	Uematsu, Minoru, et al. "Daily Positioning Accuracy of Frameless Stereotactic Radiation Therapy with a Fusion of computed Tomography and Linear Accelerator (Focal) Unit: Evaluation of z-axis with a z-marker"; <i>Radiotherapy and Oncology</i> , Vol. 50, Issue 3, 1 March 1999, Pages 337-339.

Examiner's  
SignatureDate  
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\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

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**First Class Mail**  
**Date Mailed**

**March 4, 2003**

**Due Date:**  
**Atty. Docket**

**\*N/A\***  
**270/234; 18721-7053**  
**(PCM:ct)**

**Applicant(s):**  
**Title:**

**Yoshihiro Takai et al.**  
**METHOD AND APPARATUS FOR IRRADIATING A TARGET**

**Serial No.:**

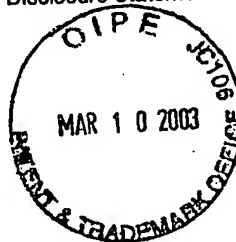
**10/037,477**

**Filing Date:** **January 2, 2002**

**Commissioner for Patents**  
**Washington, DC 20231**

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270/234  
18721-7053

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**Signature of Person Certifying:**

Printed Name: Carolyn Tobias

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

**In re the Application of:**

Yoshihiro Takai et al.

**Serial No.: 10/037,477**

**Filed: January 2, 2002**

## For: METHOD AND APPARATUS FOR IRRADIATING A TARGET

**Group Art Unit: 2882**

**Examiner:** Not yet assigned

## SECOND SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
Washington, D.C. 20231

**Sir:**

In accordance with 37 CFR §§ 1.97 and 1.98, the items identified in this Information Disclosure Statement ("IDS") are brought to the attention of the Office. The items are listed on the attached form PTO/SB/08A. Copies of the items listed are enclosed herewith.

The items identified in this IDS may or may not be "material" pursuant to 37 CFR § 1.56. The submission thereof by Applicants is not to be construed as an admission that any such patent, publication or other information referred to therein is material or considered to be material (37 CFR § 1.97(h)), or even qualifies as "prior art" under 35 USC § 102 with respect to this invention unless specifically designated by Applicants as such.

INFORMATION DISCLOSURE STATEMENT FILING PROVISION:

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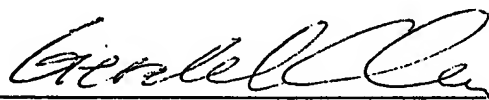
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Respectfully submitted,

Dated: 3/4/03

By:

  
Gerald Chan  
Reg. No. 51,541

BINGHAM McCUTCHEN LLP  
Three Embarcadero, Suite 1800  
San Francisco, CA 94111-4067  
Telephone: (650) 849-4904  
Telefax: (650) 849-4800

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STATEMENT BY APPLICANT**

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Sheet

1

of

2

Application Number

10/037,477

Filing Date

January 2, 2002

First Named Inventor

Yoshihiro Takai

Art Unit

2882

Examiner Name

Not yet assigned

Attorney Docket No.

270/234; 18721-7053

**OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher city and/or country where published	
	1	Balter, J. M. et al., "Daily targeting of intrahepatic tumors for radiotherapy," <i>Int J Radiat Oncol Biol Phys</i> , 2002, Jan 1:52(1), pp. 266-71	
	2	Cho, P.S. et al. "Cone-beam CT for radiotherapy applications," <i>Phys Med Biol</i> 1995;40: pp. 1863-1883.	
	3	Drake, D.G. et al. "Characterization of a fluoroscopic imaging system for kilovoltage and megavoltage radiography," <i>Med Phys</i> 2000;27: pp. 898-905.	
	4	Fahrig, R. et al., "Three-dimensional computed tomographic reconstruction using a C-arm mounted XR11: Imagebased correction of gantry motion non-idealities," <i>Med Phys</i> 2000;27:30-38.	
	5	Feldkamp, L.A. et al. "Practical cone-beam algorithm," <i>J Opt Soc Am A</i> 1984;1: pp. 612-619.	
	6	Groh, B.A. et al. "A performance comparison of flat-panel imager-based MV and kV conebeam CT," <i>Med Phys</i> 2002;29: pp. 967-975.	
	7	Jaffray, D.A. et al. "A radiographic and tomographic imaging system integrated into a medical linear accelerator for localization of bone and soft-tissue targets," <i>Int J Radiat Oncol Biol Phys</i> 1999;45: pp. 773-789.	
	8	Jaffray, D.A. et al. "Cone-beam computed tomography with a flat-panel imager: Initial performance characterization," <i>Med Phys</i> 2000;27: pp.1311-23.	
	9	Keall, P. J. et al., "[Abstract] Motion Adaptive X-ray Therapy: A feasibility study," <i>3<sup>rd</sup> Annual IMRT Symposium ABSTRACTS</i> , Chicago 2000 World Congress, July 24, 2000, Sheraton Chicago, Chicago, Illinois.	
	10	Keall, P. J. et al., "[Presentation] Motion Adaptive X-Ray Therapy: A Feasibility Study," Medical College of Virginia Hospitals, Virginia Commonwealth University.	
	11	Midgley, S., et al. "A feasibility study for megavoltage cone beam CT using commercial EPID," <i>Phys Med Biol</i> 1998;43: pp. 155-169.	

Examiner's  
SignatureDate  
Considered

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Sheet **2** of **2**

Complete if Known

Application Number	10/037,477
Filing Date	January 2, 2002
First Named Inventor	Yoshihiro Takai
Art Unit	2882
Examiner Name	Not yet assigned
Attorney Docket No.	270/234; 18721-7053

### OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

12	Mosleh-Shirazi, M.A. et al. "A cone-beam megavoltage CT scanner for treatment verification in conformal radiotherapy," <i>Radiother Oncol</i> 1998; 48: pp. 319–328.
13	Nakagawa, K, et al. "Megavoltage CT-assisted stereotactic radiosurgery for thoracic tumors: Original research in the treatment of thoracic neoplasms," <i>Int J Radiat Oncol Biol Phys</i> 2000; pp. 48:449–457.
14	Pisani, L. et al. "Setup error in radiotherapy: On-line correction using electronic kilovoltage and megavoltage radiographs," <i>Int J Radiat Oncol Biol Phys</i> 2000; 47: pp. 825–839.
15	Ruchala, K.J. et al. "Megavoltage CT on a tomotherapy system," <i>Phys Med Biol</i> 1999; 44: pp. 2597–2621.
16	Siewerdsen, J.H. et al. "Cone-beam computed tomography with a flat-panel imager: Magnitude and effects of x-ray scatter," <i>Med Phys</i> 2001;28: pp. 220–231.
17	Siewerdsen, J.H., et al. "Optimization of x-ray imaging geometry (with specific application to flat-panel cone-beam computed tomography)," <i>Med Phys</i> 2000;27: pp. 1903–1914.
18	Swindell, W. et al., "Computed tomography with a linear accelerator with radiotherapy application," <i>Med Phys</i> , 10, pp. 416-420.
19	Uematsu, M. et al. "A dual computed tomography linear accelerator unit for stereotactic radiation therapy: A new approach without cranially fixated stereotactic frames," <i>Int J Radiat Oncol Biol Phys</i> 1996;35: pp. 587–592.
20	Uematsu, M. et al. "Intrafractional tumor position stability during computed tomography (CT)-guided frameless stereotactic radiation therapy for lung or liver cancers with a fusion of CT and linear accelerator (FOCAL) unit," <i>Int J Radiat Oncol Biol Phys</i> 2000;48: pp.443–448.

Examiner's  
SignatureDate  
Considered

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